NOAA/SEC STEREO/SECCHI Desirements

D.A. Biesecker

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SEC's SECCHI Priorities

- The SECCHI contents of the Space Weather Beacon
  - There are beginning of life (BOL) priorities for NOAA/SEC
    - We expect some modification as separation angles increase
- Assumptions
  - We assess cadence, resolution and compression needed to make the data useful for space weather forecasting.
    - Typically only general statements for now
  - When we know the options for trading resolution & compression we can fill in more specific numbers.
- If you disagree with our priorities, we're willing to listen
  - But first, ask yourself, what forecast product will be enabled or improved by changing the priorities?

Priorities

- In order
  - COR2 – Total Brightness
  - HI-1 and HI-2
  - COR2 – polarizers
  - EUVI
  - COR1
  - Health and safety (this is really priority #1)

COR2

- **Brightness**
  - **Cadence: 15 minute**
  - **Resolution: moderate**
  - **Compression: moderate**

    The fastest CME's will transit the COR2 FOV in about 1 hour. This gives us ~4 images and allows an early and reliable determination of CME speed and morphology. This essentially allows the STEREO data to be used the way SOHO data is currently used.

HI

- **Brightness**
  - **Cadence: alternate hourly (or possibly 3 hours of HI-1, then an HI-2)**
  - **Resolution: moderate?**
  - **Compression: moderate?**

    Our expectation is that the HI's will allow us to revise forecasts in real-time, to try to reduce the error in current forecast abilities. If HI-2 allows us to know the CME/shock arrival is just 6 hours out, that's 5 more hours than ACE gives us.

pB

- **Individual polarizers**
  - **Cadence: 15 minute**
  - **Resolution: low**
  - **Compression: moderate?**

    We believe this will be most useful early in the mission, when the s/c separations are small, to provide information on CME location. This would be useful for Moran and Davila CME polarization technique. These data can be binned substantially, since the default technique would do this anyway.

EUVI

- **Single filter**
  - **Cadence: high**
  - **Resolution: very low**
  - **Compression: a lot**

    Useful for over the limb flare location, fast AR development over East limb, low corona signatures of CME's. The CME signatures are probably the least important of these. EUVI importance is lesser during the early phase of the mission. Remember, GOES/SXI images are available at a 1 minute cadence. That gives SEC almost everything it needs on the Earthward side of the Sun.

COR1

- **Total brightness**
  - **Cadence: moderate to high**
  - **Resolution: low**
  - **Compression: high**

    Usefulness for forecasting is unknown. It will give us more information on CME's, but the velocity and initial acceleration in the low corona is not currently important for forecasting. The 'terminal' velocity is what forecasters use. COR1 might help with separating nearly simultaneous CME's that appear to be co-spatial, though, the polarization will do this task as well.

Health and Safety

- **Instrument health and safety**
  - Even we recognize this is priority #1

We are fully supportive of an image cadence from all of the imaging instruments which will allow for at least a nominal check of health and safety.

Beacon Antenna Partners

Baseline antenna network at launch:

- **NOAA (Boulder, Wallops, Fairbanks)**
- **France**
- **Japan (NICT)**

Other possible partners:

- **RAL, UK**
- **Berkeley**
- **???**

Recent NOAA SEC Activities:

- **Started conducting functional tests between partners and SSC.**
- **Began with SEC, now working other NOAA sites.**
- **Then will move to the international partners.**
- **Still are licensing issues with France Telecom for use of Turbo Encoding/Decoding. Waiting on approval of some issues by head of NOAA, Adm. Lautenbacher.**